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01P15526USPATENT APPLICATION  
09/990,844

2

## REMARKS

This Application has been carefully reviewed in light of the Office Action mailed July 7, 2006. At the time of the Office Action, Claims 1-14 and 16-21 were pending in this Application. Claim 15 was previously canceled without prejudice. Claims 1-4 are allowed. Claims 5-7, 11-14, and 16-21 stand rejected. Claims 8-10 were objected to. Applicants respectfully request reconsideration and favorable action in this case.

**Rejections under 35 U.S.C. § 102**

Claims 5 and 11 were rejected by the Examiner under 35 U.S.C. §102(a) as being anticipated by U.S. Patent 5,623,511 issued to Bar-David et al. ("Bar-David"). Applicants respectfully traverse and submit the cited art does not teach all of the elements of the claimed embodiment of the invention.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1997). Furthermore, "the identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co. Ltd.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Applicant respectfully submits that the cited art as anticipatory by the Examiner cannot anticipate the rejected Claims, because the cited art does not show all the elements of the present Claims.

The Examiner stated that Bar-David discloses all the limitations of independent claims 5 and 11. Applicants respectfully disagree. Independent Claims 5 and 11 are directed to a method of determining a reduced trellis from a sequence of symbols in a Viterbi detector and, e.g. comprise the steps of determining the value of a previous symbol from the sequence of symbols; and generating said reduced trellis by calculating only path metrics for states in which the previous symbol has the determined value. Thus, a reduced trellis which requires less calculations is obtained.

AUS01:429658.1

ATTORNEY DOCKET  
01P15526USPATENT APPLICATION  
09/990,844

3

The Examiner stated that Bar-David discloses such a method in Col. 23, lines 30-47 and col. 27, lines 37-50. Col. 23, lines 30-47 merely describes the evaluation of a fully calculated trellis and the possibility of tracking back a sequence by only selecting the states with the highest weights. However, all calculations have to be performed to be able to perform such an evaluation. Thus, no reduction of trellis calculation takes place.

Col. 27, lines 37-50 refers to another embodiment which uses intermediate states. The present claim does not include any intermediate calculation but rather reduces the amount of calculations in a trellis between two sequential symbols, e.g. at states  $k$  and the following states  $k+1$  as explained in detail in the last responses to office action. Bar-David discloses a different approach in the alternate embodiment disclosed in Col. 27, lines 37-50. The symbol estimator used in this embodiment is disclosed in detail in Col. 28, lines 4 - Col. 29, line 10 and uses intermediate states to determine the final result of a sequential symbol. For each intermediate state all possible calculation have to be made. Bar-David explains that for each intermediate state 256 possible signal states are evaluated and a weight is assigned to each state. See Bar-David, col. 28, line 5-12. By calculating the intermediate states, the system takes the intersymbol interference into account. However, this concept still requires a calculation of all possible paths from symbol  $k-1$  to symbol  $k$  as shown in the Fig. 18. Fig. 18 shows that all four transitions for each symbol  $k-1$  are calculated to the intermediate states. Then, the highest weights for each state  $k$  is selected as the surviving path. However, Bar-David still requires to perform the full trellis calculation, namely in the shown example 4 paths per state  $k-1$ . No reduction takes place. Therefore, Bar-David does not disclose the concept as claimed in independent claim 5 and 11 in which a reduced trellis is calculated in which only a sub-set of calculations has to be performed.

Moreover, the shown concept of Bar-David does not fit within the definition of symbols and states of the present independent claims. An "intermediate state for symbol  $k$ " as disclosed in Bar-David is not a previous symbol as defined in the present application. A symbol sequence is for example,  $k-2, k-1, k, k+1$ , etc... The "intermediate states for symbol  $k$ " is not a previous symbol because an intermediate state comprises a plurality of possible symbol states from which

AUS01:429658.1

ATTORNEY DOCKET  
01P15526US

PATENT APPLICATION  
09/990,844

4

the one with the highest weight is selected as the state for the symbol. Thus, Bar-David discloses to select the transition path from a previous symbol k-1 to a following symbol k with the highest weight by means of calculating intermediate states for each symbol state. However, as discussed above, this results in no reduction of calculations as defined in the present independent claims 5 and 11.

Finally, Bar-David does not select a symbol value in a previous state and then performs only calculations from that selected symbol. The bold lines between the intermediate states and the symbol k in Fig. 18 are not transition paths but rather indicated which value of the calculated 16 values is the most likely value for that state. See in particular, col. 27, line 56- col. 28, line 3.

Therefore, Applicant believes that all pending independent claims are allowable. Applicants respectfully submit that the dependent Claims are allowable at least to the extent of the independent Claim to which they refer, respectively. Thus, Applicants respectfully request reconsideration and allowance of the dependent Claims. Applicants reserve the right to make further arguments regarding the Examiner's rejections under 35 U.S.C. §102 or §103, if necessary, and do not concede that the Examiner's proposed combinations are proper.

AUS01:429658.1

ATTORNEY DOCKET  
01P15526US

PATENT APPLICATION  
09/990,844

5

**Allowable Subject Matter**

Claims 1-4 are allowed.

Applicants appreciate Examiner's indication that Claims 8-10 would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. However, as pointed out above, Applicants believe that all claims are allowable.

**CONCLUSION**

Applicants have made an earnest effort to place this case in condition for allowance in light of the amendments and remarks set forth above. Applicants respectfully request reconsideration of the claims as amended.

Applicants believe there are no fees due at this time, however, the Commissioner is hereby authorized to charge any fees necessary or credit any overpayment to Deposit Account No. 19-2179.

If there are any matters concerning this Application that may be cleared up in a telephone conversation, please contact Anand Sethuraman at the number below.

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Respectfully submitted,



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AUS01:429658.1